

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
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## INDIANA, Northeast

### Adams County

Decatur to Geneva	04 05	1740EST 1205EST			0	0	100K	150K	Flood
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NUMEROUS COUNTY ROADS ESPECIALLY ACROSS THE SOUTHERN HALF OF THE COUNTY WERE INUNDATED ALONG WITH LOW LYING AGRICULTURAL FARMLANDS.

### Grant County

Marion	04 05	1740EST 1525EST			0	0	1M	500K	Flood
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EXTENSIVE FLOODING THROUGHOUT M ARION AND THE COUNTY. M ANY ROADS AND BRIDGES UNDER WATER. NUMEROUS RESIDENCES WERE EVACUATED ALONG THE MISSISSINewa RIVER AS ARMY NATIONAL GUARDSM EN SANDBAGGED A WEAKENING DIKE ON THE EAST SIDE OF M ARION. THE DIKE HELD BUT SEVERAL HOMES SUSTAINED WATER DAMAGE.

### Blackford County

Hartford City	05	0000EST 0300EST			0	0	50K	100K	Flood
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NUMEROUS COUNTY ROADS WERE FLOODED ALONG WITH AGRICULTURAL LAND.

### Jay County

Portland	05	0000EST 0300EST			0	0	100K	150K	Flood
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OAKWOOD MOBILE HOME PARK INUNDATED. SEVERAL RESIDENCES IN PORTLAND FLOODED. MOST RURAL COUNTY ROADS WERE CLOSED DUE TO THE HIGH WATER OVER THE ROADS.

Synoptic and Mesoscale conditions for August 5th...

A large upper trough was anchored over the central plains the morning of August 4th with a surface reflection across southeastern Iowa. A warm front stretched from this low across northern Indiana which provided the low level focus for shower and thunderstorm development the morning of the 4th. The airmass south of this front was tropical in nature with surface dewpoints in the middle 70s and precipitable water values from 1.75 to 2.00 inches. Mid level winds were quite weak however providing for slow storm movements and training echoes. Many locations from Laporte to Portland received from 1 to 3 inches of rain the morning of the 4th. By late afternoon a weak short wave trough ejected out of upper trough back in Iowa as a low level jet developed from Missouri into central Indiana. Showers and thunderstorms redeveloped north of the warm front once again from Huntington to Portland and remained nearly stationary through the evening. Very heavy rain fell throughout the evening and early morning hours on August 5th with many areas from Huntington to Portland reporting from 5 to 9 inches of rainfall. River flooding then occurred on the 6th and 7th along the Mississinewa...Salamonie and Wabash rivers.

### Stauben County

Clear Lake	24	0500EST			0	0			Thunderstorm Wind (G56)
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SEVERAL LARGE TREES BLOWN DOWN.

### Stauben County

2 NE Fremont	24	0500EST			0	0			Hail (0.75)
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### La Porte County

La Porte	24	1446EST			0	0	250K		Thunderstorm Wind
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TREES BLOWN DOWN ON ONE HOUSE AND SEVERAL CARS.

### La Porte County

Michigan City	24	1450EST			0	0	10K		Thunderstorm Wind
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TREE FELL ON CAR ON HIGHWAY 35.

### La Porte County

La Porte	24	1503EST			0	0			Thunderstorm Wind (G52)
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### La Porte County

La Porte	24	1505EST			0	0	0		Thunderstorm Wind
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LARGE TREES BLOWN DOWN WITH SEVERAL ROADS BLOCKED.

### St. Joseph County

South Bend	24	1510EST			0	0			Thunderstorm Wind (G70)
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MANY TREES BLOWN DOWN.

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<b>INDIANA, Northeast</b>									
St. Joseph County South Bend	24	1515EST			0	0			Hail (0.75)
Elkhart County Dunlap	24	1527EST			0	0	50K		Thunderstorm Wind (G61)
		SEVERAL HOME ROOFS DAMAGED.							
St. Joseph County South Bend	24	1531EST			0	0	50K		Thunderstorm Wind
		SEVERAL POWER POLES SNAPPED OFF BY HIGH WINDS.							
Kosciusko County Milford	24	1550EST			0	0	50K		Thunderstorm Wind
		SEVERAL TREES AND POWER LINES DOWN.							
Kosciusko County Syracuse	24	1550EST			0	0	50K		Thunderstorm Wind
		SEVERAL TREES AND POWER LINES DOWN.							
Lagrange County Topeka	24	1550EST			0	0	0		Thunderstorm Wind
		LOTS OF LARGE TREES AND LIMBS BLOWN DOWN.							
Lagrange County Shipshewana	24	1551EST			0	0	0		Thunderstorm Wind
		SEVERAL TREES DOWN IN TOWN.							
Whitley County Churubusco	24	1605EST			0	0	75K		Thunderstorm Wind
		TREE FELL INTO A HOUSE CAUSING MAJOR STRUCTURAL DAMAGE. ANOTHER TREE FELL ON TOP OF A CAR FLATTENING IT.							
Steuben County Helmer	24	1611EST			0	0			Thunderstorm Wind (G52)
Allen County Ft Wayne	24	1614EST			0	0	50K		Thunderstorm Wind
		SEVERAL TREES AND POWER LINES DOWN. LARGE TREE FELL ONTO CAR CRUSHING IT.							
Noble County Kendallville	24	1614EST			0	0	30K		Thunderstorm Wind
		NUMEROUS TREES DOWN IN TOWN AND ACROSS MOST OF NOBLE COUNTY.							
Noble County Wolcottville	24	1614EST			0	0	25K		Thunderstorm Wind
		NUMEROUS TREES AND LARGE LIMBS BLOWN DOWN.							
Allen County Ft Wayne	24	1625EST			0	0	100K		Thunderstorm Wind
		BUILDING UNDER CONSTRUCTION DESTROYED.							
Grant County Hackleman	24	1715EST			0	0	10K		Thunderstorm Wind
		NUMEROUS TREES DOWN.							
Grant County Marion	24	1723EST			0	0	150K		Thunderstorm Wind
		WIDESPREAD TREE DAMAGE IN MARION AND ACROSS GRANT COUNTY.							
St. Joseph County South Bend	25	0125EST			0	0	150K		Thunderstorm Wind
		THE DOORS WERE BLOWN OFF A SQUAD CAR. NUMEROUS TREES AND POWER LINES WERE DOWN ACROSS TOWN AND ESPECIALLY ACROSS THE EASTERN THIRD OF THE COUNTY. ONE TREE FELL ONTO A HOME ALONG AUTEN ROAD WHICH CAUSED MODERATE STRUCTURAL DAMAGE TO THE HOME.							

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## INDIANA, Northeast

### Elkhart County

**9 WNW Bristol to  
Bristol**      **25**      **0130EST  
0135EST**      **9**      **100**      **0**      **0**      **200K**      **Tornado (F0)**

THIS WAS THE SAME TORNADO WHICH BEGAN IN NILES EARLIER. DAMAGE WAS EXTENSIVE TO TREES AND POWER LINES FROM THE ELKHART/CASS COUNTY LINE TO THE TOWN OF BRISTOL. SOME HOMES SUFFERED MAINLY MINOR DAMAGE TO SIDING...ROOFS AND GUTTERS. SOME OUTBUILDINGS HOWEVER WERE COMPLETELY DESTROYED.

### Elkhart County

**2 SSE Dunlap to  
2.5 SSE Dunlap**      **25**      **0135EST  
0136EST**      **0.5**      **100**      **0**      **0**      **300K**      **Tornado (F1)**

THIS TORNADO LIKELY FORMED ALONG THE LEADING EDGE OF THE BOW ECHO WHICH PASSED THROUGH BERRIEN AND ST. JOSEPH COUNTIES EARLIER. IT TOUCHED DOWN ON TOP OF THE FORD DEALERSHIP ALONG HIGHWAY 33 TEARING OFF A LARGE PART OF THE ROOF AND ONE WALL. NEXT IT THREW A FORD AEROSTAR VAN INTO A POWER POLE AND PICKED UP AN RV TOSSING IT OVER 50 YARDS AWAY ACROSS THE HIGHWAY INTO A DITCH. NEXT IT CROSSED A STREET AND HIT A MANUFACTURED HOME DEALERSHIP SHIFTING SEVERAL HOMES OFF THEIR FOUNDATIONS, TEARING A LARGE PART OF THE OFFICE ROOF OFF AND FLIPPING A MOVING VAN OVER. IT THEN PROCEEDED DOWN ALONG HIGHWAY 33 FOR APPROXIMATELY ANOTHER 200 YARDS TEARING OFF PARTS OF ROOFS AND AIR CONDITIONING UNITS BEFORE LIFTING.

### Elkhart County

**Elkhart to  
Goshen**      **25**      **0135EST  
0140EST**      **0**      **0**      **250K**      **Thunderstorm Wind**

EXTENSIVE TREE AND POWER LINE DAMAGE OCCURRED ACROSS THE ENTIRE COUNTY. SEVERAL BUILDINGS AND CARS IN DOWNTOWN GOSHEN SUSTAINED MINOR TO MODERATE STRUCTURAL DAMAGE DUE TO LARGE TREES AND LIMBS CRASHING DOWN. BUSINESSES ON THE EAST SIDE OF GOSHEN ALONG HIGHWAY 33 SUSTAINED DAMAGE. THE HOLIDAY INN HAD PART OF ITS ROOF BLOWN OFF. LOCAL BANK HAD ITS STEEL BANK SIGN FLATTENED.

## MICHIGAN, Extreme Southwest

### Cass County

**Marcellus**      **24**      **0310EST**      **0**      **0**      **Hail (0.75)**

### Branch County

**Bronson**      **24**      **0355EST**      **0**      **0**      **Hail (1.75)**

### Branch County

**Coldwater**      **24**      **0400EST**      **0**      **0**      **25K**      **Thunderstorm Wind**  
TREES AND POWER LINES DOWN.

### Hillsdale County

**Hillsdale**      **24**      **0430EST**      **0**      **0**      **50K**      **Thunderstorm Wind**  
WIDESPREAD TREE DAMAGE AND POWER LINES DOWN ACROSS THE COUNTY.

### Cass County

**Edwardsburg**      **24**      **1525EST**      **0**      **0**      **Thunderstorm Wind (G52)**

### Cass County

**2 E Adamsville**      **24**      **1604EST**      **0**      **0**      **10K**      **Thunderstorm Wind**  
TREE FELL ONTO A PICKUP TRUCK TOTALLY SMASHING IT.

### Berrien County

**Benton Center**      **25**      **0038EST**      **0**      **0**      **Hail (0.75)**

### Cass County

**Marcellus**      **25**      **0040EST**      **0**      **0**      **Hail (0.75)**

### Berrien County

**Coloma**      **25**      **0048EST**      **0**      **0**      **Urban/Sml Stream Fld**  
WATER UP TO THE BOTTOM OF CAR DOORS ON STREETS.

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<b><u>MICHIGAN, Extreme Southwest</u></b>									
<b>Berrien County</b> <b>St Joseph</b>	25	0052EST			0	0			Hail (1.75)
<b>Berrien County</b> <b>Niles to</b> <b>2 ESE Niles</b>	25	0100EST	2	400	0	0	1.1M		Tornado (F1)
EXTENSIVE DAMAGE TO TREES ACROSS THE CITY WHICH BLOCKED 15 SEPARATE STREETS AT ONE TIME. 60 HOMES DAMAGED SUSTAINED MINOR TO SEVERE STRUCTURAL DAMAGE. MANY VEHICLES WERE DAMAGED OR DESTROYED BY FALLEN TREES AND LIMBS. SEVERAL POWER POLES AND LINES TAKEN OUT. THE FRENCH PAPER COMPANY LOST ROOFS ON THREE DIFFERENT BUILDINGS AS DID THE D&D TIRE COMPANY WHICH HAD ITS WAREHOUSE ROOF RIPPED OFF. DEMOND GROCERY STORE LOST 20K DOLLARS WORTH OF PERISHABLE FOOD ITEMS DUE TO THE EXTENDED EXTENSIVE POWER OUTAGE THAT AFFECTED 41,500 PEOPLE AT ONE POINT. ONE MAN LOST 21 LARGE TREES IN HIS YARD ALONE. THE MICHIGAN STATE GOVERNOR DECLARED THE CITY OF NILES A DISASTER AREA. AN OFF DUTY MICHIGAN STATE POLICE OFFICER TRAGICALLY LOST HIS LIFE WHEN HE WAS ELECTROCUTED BY A DOWNED POWER LINE.									
<b>Cass County</b> <b>8 WNW Edwardsburg to</b> <b>1 E Adamsville</b>	25	0110EST	9	800	0	0	500K		Tornado (F2)
ONE MOBILE HOME WAS COMPLETELY DEMOLISHED ON SOUTH SIDE OF JUNO LAKE AND SEVERAL OTHER HOMES AROUND JUNO, PAINTER, EAGLE AND CHRISTAN LAKE SUFFERED MINOR TO MODERATE STRUCTURAL DAMAGE. AN RV WAS TOSSED ABOUT AND ROTATED 180 DEGREES WHICH CAUSED MAJOR DAMAGE. NUMEROUS TREES WERE COMPLETELY FLATTENED WHICH ALSO CAUSED DAMAGE TO HOMES. MANY ROADS WERE BLOCKED BY FALLEN TREES...SNAPPED POWER POLES AND DOWNED POWER LINES.									
THIS TORNADO BEGAN IN NILES AND PEAKED IN INTENSITY AND WIDTH 3 MILES NORTHWEST OF EDWARDSBURG WHERE IT WIDENED OUT TO ONE HALF MILE. IT CONTINUED ON TOWARD THE TOWN OF BRISTOL IN NORTHEAST ELKHART COUNTY BEFORE LIFTING.									
<b>Cass County</b> <b>1 E Adamsville to</b> <b>5 ESE Adamsville</b>	25	0115EST 0120EST	6	300	0	0	300K		Tornado (F1)
THE TORNADO HAD WEAKENED AS IT PASSED JUST EAST OF ADAMSVILLE. IT STILL CAUSED EXTENSIVE DAMAGE TO SEVERAL FARMS ALONG AND PRIMARILY SOUTH OF HIGHWAY 12. SEVERAL HOMES AND VEHICLES SUSTAINED MAJOR DAMAGE DUE TO FALLEN TREES.									
<b>Branch County</b> <b>Bronson</b>	25	0120EST			0	0			Thunderstorm Wind (G52)
<b>Branch County</b> <b>Batavia</b>	25	0130EST			0	0	25K		Thunderstorm Wind
SEVERAL TREES AND POWER LINES DOWN IN TOWN.									
<b>Branch County</b> <b>Kinderhook</b>	25	0130EST			0	0	25K		Thunderstorm Wind
LOTS OF TREES AND POWER LINES DOWN.									
<b>St. Joseph County</b> <b>Constantine to</b> <b>Sturgis</b>	25	0130EST 0132EST			0	0	100K		Thunderstorm Wind
EXTENSIVE TREES AND POWER LINES DOWN ACROSS THE COUNTY.									
<b>Cass County</b> <b>Cassopolis</b>	25	0132EST			0	0			Thunderstorm Wind (G52)
<b>St. Joseph County</b> <b>Sturgis</b>	25	0136EST			0	0			Thunderstorm Wind (G52)
<b>Hillsdale County</b> <b>Hillsdale</b>	25	0200EST			0	0	100K		Thunderstorm Wind
SEVERAL TREES DOWN ACROSS THE SOUTHERN THIRD OF THE COUNTY INCLUDING ONE WHOLE LINE OF POWER POLES WHICH WERE FLATTENED TO THE GROUND.									

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## MICHIGAN, Extreme Southwest

### Hillsdale County

**Reading**      **25**      **0200EST**      **0**      **0**      **10K**      **Thunderstorm Wind**  
TREE FELL ON A HOME WHICH SUSTAINED JUST MINOR DAMAGE.

## OHIO, Northwest

### Henry County

**Napoleon**      **05**      **1700EST**      **0**      **0**      **150K**      **50K**      **Flood**  
**06**      **0200EST**  
SOUTHERN HALF OF THE COUNTY SUSTAINED THE WORST FLOODING. MANY RURAL COUNTY ROADS WERE WASHED OUT TO SOME DEGREE WITH EXTENSIVE DAMAGE TO LOWLAND AGRICULTURAL FARM FIELDS.

### Paulding County

**Paulding**      **05**      **1700EST**      **0**      **0**      **400K**      **250K**      **Flood**  
**06**      **0200EST**  
EXTENSIVE FLOODING OCCURRED THROUGHOUT THE COUNTY WITH ROADS AND FARM FIELDS WASHED AWAY BY THE FLOODING.

### Putnam County

**Continental to**      **05**      **1700EST**      **0**      **0**      **250K**      **100K**      **Flood**  
**Gilboa**      **06**      **0200EST**  
EXTENSIVE FLOODING OCCURRED ACROSS THE COUNTY ESPECIALLY THE NORTHERN HALF. MANY COUNTY ROADS WERE WASHED OUT TO SOME DEGREE.

Synoptic and Mesoscale conditions for August 6th...

The same storm system which had plagued parts of eastern Indiana the night before with very heavy rain shifted its focus into northwest Ohio the night of August 5. A warm top heavy rain event developed late in the afternoon of the 5th as thunderstorms developed along a warm front which stretched from the surface low now in western Illinois into northwest Ohio. Storms continued to backbuild along the front towards the theta-e ridge which extended from central Illinois into northern Indiana and train across the same areas in northwest Ohio into the morning of the 6th. Several locations from Paulding to Napoleon received from 3 to 7 inches of rain.

### Fulton County

**Wauseon**      **24**      **0230EST**      **0**      **0**      **50K**      **Thunderstorm Wind**  
A FARM HAD ITS BARN COMPLETELY DEMOLISHED. NUMEROUS TREES WERE ALSO DAMAGED.

### Williams County

**Bryan**      **24**      **0500EST**      **0**      **0**      **20K**      **Thunderstorm Wind**  
THE FRONTIER CABLEVISION BUILDING LOST PART OF ITS ROOF.

### Williams County Pioneer

**24**      **0500EST**      **0**      **0**      **Hail (0.88)**

### Fulton County

**Fayette**      **24**      **0515EST**      **0**      **0**      **Thunderstorm Wind (G56)**  
NUMEROUS TREES AND POWER LINES DOWN THROUGHOUT THE TOWN.

### Fulton County

**Wauseon**      **24**      **0525EST**      **0**      **0**      **Hail (0.88)**

### Fulton County

**Wauseon**      **24**      **0525EST**      **0**      **0**      **Thunderstorm Wind (G52)**  
NUMEROUS TREES AND POWER LINES DOWN.

### Williams County

**Montpelier**      **24**      **0550EST**      **0**      **0**      **Hail (1.00)**

### Fulton County

**Archbold**      **24**      **0614EST**      **0**      **0**      **650K**      **2M**      **Hail (4.50)**

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## OHIO, Northwest

SEVERAL HOMES NEAR ARCHBOLD SUSTAINED MODERATE TO SEVERE STRUCTURAL DAMAGE FROM THE HIGH WINDS. ONE HOME OWNER HAD HIS CHIMNEY COLLAPSE WHICH FELL THROUGH THE ROOF. THEY ALSO LOST SEVERAL WINDOWS ON THE WEST SIDE OF THE HOME FROM FLYING DEBRIS. ANOTHER HOME OWNER HAD HIS BARN BLOWN OFF ITS FOUNDATION AND HAD EVERY TREE ON THEIR PROPERTY UPROOTED. SEVERAL CROP FIELDS IN THE AREA WERE HEAVILY DAMAGED BY THE HIGH WINDS AND HAIL.

### Henry County Napoleon

24 0700EST 0 0 Hail (0.75)

### Henry County Napoleon

24 0700EST 0 0 10K Thunderstorm Wind (G52)  
HIGH WINDS BROKE SEVEN UTILITY POLES ALONG COUNTY ROAD 12. THE CITY WAS ALSO HIT WITH DIME SIZE HAIL FOR ABOUT 10 MINUTES.

### Fulton County Archbold

24 1015EST 0 0 150K 1M Flood  
TWO PEOPLE HAD TO BE RESCUED FROM THEIR VEHICLES AS THEY ATTEMPTED TO CROSS FLOODED ROADS. THE SAUDER VILLAGE MUSEUM SUSTAINED THE MOST DAMAGE AS FLAT RUN CREEK INUNDATED THE GROUND FLOOR WITH WATER. SEVERAL HOMES IN ARCHBOLD HAD WATER BACKUP THROUGH THE SEWER INTO THEIR BASEMENTS.

### Paulding County Paulding

24 1635EST 0 0 50K Thunderstorm Wind  
TREES AND POWER LINES DOWN THROUGHOUT PAULDING COUNTY.

### Van Wert County Scott

24 1647EST 0 0 Thunderstorm Wind (G52)

### Putnam County 5 N Columbus Grove

24 1710EST 0 0 Hail (1.00)

### Putnam County 5 N Columbus Grove

24 1710EST 0 0 Thunderstorm Wind (G61)

### Fulton County Archbold

25 0300EST 0 0 100K Thunderstorm Wind (G64)  
A ROOF WAS BLOWN OFF ON A HOME AT 5326 CR RD 20. ANOTHER HOME HAD ITS WINDOWS BLOWN IN ON THE WEST SIDE OF THE HOME AND A BARN WAS MOVED OFF ITS FOUNDATION 3 FEET. IN ADDITION SEVERAL LARGE TREES IN ARCHBOLD WERE UPROOTED.

### Fulton County Wauseon

25 0300EST 0 0 100K Thunderstorm Wind  
AIR CONDITIONING UNITS ON TOP OF THE LOCAL WALMART WERE BLOWN OFF. THE GREENHOUSE WAS ALSO DEMOLISHED.

### OHZ001

#### Williams

25 0315EST 0 0 Flood  
STATE ROUTE 191 CLOSED FROM WEST UNITY TO STRIKER DUE TO HIGH WATER OVER THE ROAD. SEVERAL OTHER COUNTY ROADS WERE ALSO BRIEFLY CLOSED.

### Williams County West Unity

25 0315EST 0 0 20K Thunderstorm Wind  
A LINE OF LARGE UTILITY POLES WERE SNAPPED OR BLOWN DOWN.

Synoptic and mesoscale conditions for August 23-25th...

Impressive surface based instability developed late the night of the 23th ahead of a weak surface trough axis from southern lake Michigan back into western Illinois where mid 70 dewpoints had pooled. Surface based CAPES were on the order of 3000 J/kg with lifted indices to -10. At the same time a potent upper level trough was rotating through southern Ontario. Strong mid level capping inversion was in place at the time however increasing divergence underneath the exit region of a 100 knot jet streak across northern Michigan helped to intensify the low level jet across Illinois early on the morning of the 24th. Convection initiated across lake

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## OHIO, Northwest

Michigan and quickly became severe as it became surface based over land. Wetbulb zero and freezing level temperatures were favorable for large hail and mid level winds on the southern edge of trough axis increased to 50 knots which were favorable for damaging wind gusts.

A stronger shortwave trough was located upstream across Montana the morning of the 24th. This system and associated frontal boundary across Minnesota into Michigan were forecast to combine across the area by late afternoon into the evening of the 25th and touch off another round of severe thunderstorms. The convection across southern Michigan into Ohio the morning of the 24th left behind an outflow boundary which helped pool upper 70 dewpoints across northern Indiana. By afternoon CAPES had increased to over 3000 J/kg. A surface wave developed along the cold front across Iowa by late morning where increasing surface convergence and mid level vorticity advection and cooling ahead of Montana shortwave helped to initiate a severe thunderstorm complex across northern Iowa. This system quickly turned into a derecho and raced into northern Indiana by mid afternoon.

By late evening on the 24th... rapid destabilization occurred from northern Illinois into southern Wisconsin with the approach of Montana shortwave. Low level jet increased to 40 knots across central Illinois into lake Michigan which fired off another round of severe thunderstorms from the Illinois/Wisconsin border area eastward into southern lake Michigan. This convection quickly organized into a squall line by the morning of the 25th with several embedded supercells. One isolated supercell ahead of the line which failed to produce a tornado... did produce a swath of large hail and high winds across southern Michigan. Another supercell within the squall line interacted with the outflow of this isolated supercell and produced a long track tornado as it moved southeast from Niles to Bristol. One additional tornado which was likely a gustnado did develop along the leading edge of the bowing squall line between Dunlap and Goshen. As the bow matured, damaging winds became the primary threat.